

## **Executive Summary**

- The Natural Gas Pipeline Safety Act of 1968 (the Act) authorizes the Secretary of the U. S. Department of Transportation (Secretary) to prescribe safety standards for the transportation of gas and for pipeline facilities. The Act allows each state to serve as an agent for the Secretary in the monitoring and enforcement of the safety standards if the state meets the criteria for certification in the Act.

The Illinois Gas Pipeline Safety Act, which became effective on September 29, 1969, provides the Illinois Commerce Commission (ICC) with statutory authority to establish and enforce safety standards for intrastate pipeline facilities consistent with the criteria for annual certification set forth in the federal law. The ICC has submitted annual certifications to the Secretary since 1969.

The ICC's Pipeline Safety Staff perform inspections of intrastate natural gas facilities in Illinois, including public utilities and other gas system operators, to ensure compliance with federal and state safety standards, and may recommend the commencement of enforcement proceedings when natural gas facilities are found to be in violation of these standards. Consistent with the ICC's annual certification to the Secretary, Pipeline Safety Staff also investigate all reportable accidents, prepare reports of their findings, and recommend further action, if deemed necessary, consistent with federal law and the Guidelines for States Participating in the Pipeline Safety Program issued by the Secretary.

Pursuant to both federal and state gas pipeline safety acts, the North Clybourn Avenue incident was investigated by the ICC Staff.

- On Friday October 30, 1998, a 24-inch diameter cast iron natural gas main operated by Peoples Gas Light and Coke Company (Peoples Gas or Peoples), serving an area near 1507 North Clybourn Avenue, was damaged by excavating equipment during construction of a sewer project. The escaping natural gas ignited approximately 40 minutes later, causing major fire and heat damage to a nearby 15-story high-rise apartment building owned and operated by the Chicago Housing Authority. Peoples Gas' emergency response activities stopped the flow of natural gas approximately 80 minutes after the gas ignited.
- Quick action by City of Chicago fire and police personnel resulted in the complete evacuation of the building's occupants during the 40-minute period prior to the ignition of the escaping natural gas.
- The ICC immediately initiated an investigation into the circumstances surrounding the incident to determine the probable cause and to make recommendations to reduce or eliminate the likelihood of recurrence of similar incidents. ICC Staff were at the site on the afternoon of October 30 and began the investigation with a visual inspection of the site and the damaged gas main. Initial steps also included preliminary discussions with company and contractor personnel.

- The ICC Staff investigation included a review of Peoples Gas' activities related to locating and marking of their facilities in response to requests by the sewer line contractor.
  - The ICC Staff finds the sewer line contractor notified "DIGGER", the City of Chicago's one-call system for excavators, in accordance with state law.
  - The ICC Staff finds Peoples Gas responded to each DIGGER request in a timely manner in accordance with the company's procedures, and that the gas main was properly marked on the street and sidewalk.
  - The ICC Staff was unable to determine, due to disturbance of the construction site and conflicting testimony, if Peoples Gas' locate flags were properly placed along the gas main beyond the sidewalk prior to the incident.
  - The ICC Staff finds insufficient the company's record-keeping system for locating gas facilities: the locator's form tracks "units" located, but is not specific as to the number of services or feet of main located in response to each locate request.
- The ICC Staff investigation included a review of the sewer line contractor's site plans, the location of the installed sewer main and the location of the natural gas main.
  - The ICC hired Hanson Engineers Incorporated to prepare a survey document of the site showing the sewer main as-planned and as-constructed and the exact location of the gas main.
  - The survey revealed the sewer main was not installed parallel with the natural gas main, as indicated on the project site plans, but rather at an angle toward the gas main.
  - The survey also revealed that the actual distance between the installed sewer main and the gas main near the sidewalk at North Clybourn Avenue was 7 feet, not ten feet as shown on the contractor's sewer line project plans.
  - The contractor's site plans were based, in part, on Peoples Gas' atlas page which shows the location of the 24-inch gas main at 1507 North Clybourn Avenue. A survey by Peoples Gas confirmed that its atlas page depicting the 24-inch gas main at 1507 North Clybourn Avenue is accurate.

- Court proceedings were conducted to allow the release of the damaged segment of gas main for metallurgical analysis. The metallurgical examination of the damaged section of pipe was conducted in accordance with a protocol approved by the ICC Staff and agreed to by all interested parties. The metallurgical report of Engineering Systems Inc. (ESI), dated August 3, 1999, concludes:
  - The damage resulted from a very powerful blow from excavating equipment.
  - The overall condition of the subject pipe section, both mechanically and metallurgically, was exceptionally good.
  - Spotty graphitic corrosion was observed on the damaged section, but the small size of the spots, both in surface area and depth of corrosion, indicates graphitic corrosion was of no consequence in the fracture of the gas main.
  - Visual and metallographic examination of the damaged section of gas main revealed several areas other than the fracture site where the main had recently been struck.
- The ICC Staff investigation included a review of the company's emergency response procedures and shutdown of the natural gas system.
  - The ICC Staff finds Peoples Gas did initiate and follow established emergency procedures.
  - The ICC Staff finds that the company's valve maintenance program was in compliance with the minimum safety standards.
  - Access to one valve used in shutting down the gas system was restricted due to an asphalt street overlay performed sometime after a November 1997 inspection which covered the valve vault.
- ICC Staff recommendations to Peoples Gas are:
  - Improve the facilities locating record-keeping system to be specific as to the types of facilities located: number of services and feet of main, rather than "units".
  - Revise procedures to require the use of a locating device for all follow-up locating or re-marking of utility facilities.

- Develop specific guidelines for determining the appropriate level of company monitoring of excavation projects which are near the company's facilities.
- Request and review construction plans involving excavations near the company's facilities.
- Identify valves made inaccessible due to street overlays or other causes, then clear the obstruction to make them accessible.
- Formulate a preventive plan with entities involved in street overlays or other construction projects to minimize interference with access to utility facilities.